Article 8 | Environmental Protection

Sec. 8.1 Purpose

Durham County is endowed with an abundance of natural resources, including land, forests, streams and rivers, lakes, wildlife and natural beauty. ~~The~~ Inappropriate development ~~increasing urbanization of Durham County~~ threatens the quality of the natural resources that make it a special place to live and work. Durham's governing bodies recognize that establishing standards for the protection of Durham County's natural resources represents prudent stewardship of the land and good business. The multiple purposes of natural resource protection standards are:

A. To preserve and enhance the quality of the water in rivers, streams, ponds and lakes that flow into and out of Durham County;

B. To minimize future flooding problems by ~~guiding~~ restricting development ~~away from~~ in flood prone areas;

C. To preserve the water carrying capacity of watercourses and the natural water storage capacity of the floodplain;

D. To protect land and watercourses from pollutants, sedimentation and erosion;

E. To retain open spaces in order to protect their environmentally-sensitive character;

F. To protect and conserve significant natural resources from degradation due to inappropriate development. ~~urbanization.~~ Such natural resources include Inventory Sites, wildlife and plant life habitats, wetland areas and riparian areas;

G. To minimize the impact of development by controlling the location, intensity, pattern and design of development and construction activities;

H. To enhance the aesthetic appearance of Durham as a means of improving quality of life and attracting new businesses and residents; ~~and~~

I. To improve air quality by reducing the heat island effect; and

J. To protect environmentally sensitive lands while recognizing the legitimate expectations of property owners and Durham's economic development goals.

Sec. 8.2 Exemptions from Environmental Protection Standards

8.2.1 Water Supply Reservoirs

Public water supply reservoirs and associated facilities shall be exempt from the requirements of this Article unless explicitly acknowledged within any section.

~~New construction on single-family residential lots of record recorded prior to June 21, 1999 (City Jurisdiction) and June 28, 1999 (County Jurisdiction) shall be exempt from the provisions of Section 11, Natural Resource Protection Standards.~~

~~Additions to existing residential buildings on single-family residential lots of record recorded prior to June 21, 1999 (City Jurisdiction) and June 28, 1999 (County Jurisdiction) shall be exempt from the provisions of Section 11, Natural Resource Protection Standards.~~

~~Approved Plans~~

~~Development and land disturbing activity shown on approved and continuously valid site plans, preliminary plats, final plats, development plans, minor special use permits and major special use permits may be constructed in accordance with those approved plans. However, any significant additions, expansions or phases that deviate from the approved plans indicated above shall be constructed in accordance with this Article. The Planning Director or designee shall make the determination as to whether any deviation from one of these previously approved plans shall be considered to be significant.~~

~~After June 21, 1999 (City Jurisdiction) and June 28, 1999 (County Jurisdiction), all development and land disturbing activity shall be conducted in accordance with this Article, except as provided below.~~

~~Valid Building Permit~~

~~Development for which a building permit has been issued and remains continuously valid may be constructed in accordance with the standards in effect at the time of issuance.~~

~~Vested Right~~

~~Development having an established vested right in accordance with the Durham Zoning Ordinance, Section 18, Vested Rights may be constructed in accordance with the approved vested right site plan.~~

~~Public Water Supply Facilities~~

~~Public water supply reservoirs and facilities, public wastewater treatment facilities and associated structures necessary for the operation of such facilities shall be exempt from the requirements of this Article.~~

Sec. 8.3 Tree Protection and Tree Coverage

8.3.1 Tree Survey

A. Purpose ~~Objectives~~

The primary ~~objective~~ purpose of the tree survey requirements is to provide better information about the presence and location of significant trees on sites proposed for development. This information is needed before plans for development are so far advanced that it is unreasonable and impractical to modify the plans to protect the trees identified on the tree survey. ~~Tree survey requirements do not obligate a property owner or developer to save trees by modifying a plan for development. They do, however, require the preservation of any specimen trees within the required buffer areas of any development.~~ Knowing the location and size of specimen trees helps the staff and governing body evaluate possible modifications to the proposed plans to preserve significant trees and improve the appearance of proposed development.

B. General Tree Survey

For a Development Plan showing building envelopes rather than building footprints, ~~where specific building locations are not shown, a more~~ a generalized survey ~~of vegetation may be provided in lieu of a specimen tree survey. This survey shall~~ describing existing forest stands, indicating the ~~average~~ range of species and approximate size of trees on the tract, shall be provided.

C. Specimen Tree Survey

1. A specimen tree survey shall be required for any Development Plan showing specific building footprints, site plan, preliminary plat, ~~development plan,~~ major special use permit or minor special use permit.

2. The specimen tree survey shall show the general location, species and size of any ~~tree~~ significant trees, which shall be defined as all trees ~~(except those in the *Pinus* genus)~~ greater than 18 inches dbh. ~~in diameter measured 4½ feet above the ground~~. Specimen trees of the *Pinus* genus shall only be considered significant and required to be shown on surveys in the Rural Tier.

3. ~~However,~~ A specimen tree survey shall not be required for land in the floodway, floodway fringe (unless proposed to be filled or developed in accordance with Sec. 8.4.3B.2), preserved wetlands and wetland buffers, steep slope areas, stream buffers and Major Transportation Corridor (MTC) buffers, and, if preserved, Durham Natural Inventory Sites.

~~Having better information about the location of specimen trees is not especially useful where plans call for the preservation of large areas in undisturbed vegetation. An example is the pervious portions of developments in watershed protection districts. Producing such information adds to the project's cost without providing information that could result in project redesign. Where unique site conditions or a proposed development arrangement indicate that the required specimen tree survey would produce little useful information, the Planning Director or the Director's designee shall have the authority to waive the requirement for a specimen tree survey for all or a portion of the tract.~~

D. Land Disturbance Tree Survey

1. A land disturbance tree survey shall be required for any site plan, ~~or~~ preliminary plat, grading plan, erosion control plan.

2. The land disturbance tree survey shall show the location, species, size and root protection zone ~~area~~ of any tree greater than 10 inches dbh ~~in diameter measured 4½ feet above the ground~~ that is within a tree protection area and within 30 feet of any land disturbing area. For the purpose of this paragraph, a tree protection area shall include any floodplain, steep slope area, stream buffers, required landscape buffers, tree coverage areas, Inventory sites, and wetlands.

8.3.2 Tree Coverage ~~and Protection~~ Standards

A. Purpose ~~Objectives~~

The primary ~~objectives~~ purpose of the tree coverage ~~and protection~~ standards ~~are~~ is the preservation and maintenance of undisturbed tree cover and the provision of replacement tree cover on development sites in ~~urban and~~ the Suburban Tier. ~~areas~~. Tree coverage serves to reduce glare, noise, air pollution, and soil erosion; to moderate temperatures; to reduce stormwater runoff; to preserve remnants of Durham's native ecology; to provide habitat for native plants and wildlife; to provide a healthy living environment; and to make Durham County a more attractive place to live.

B. Applicability

1. Tree coverage standards shall only be applied in the Suburban Tier.

2. RS-20 developments shall be exempt from tree coverage requirements provided enforceable assurances are provided that no mass grading (except that associated with road development) will be utilized during the development process.

C. Tree Coverage

1. ~~After May 3, 1999 (City Jurisdiction) and May 10, 1999 (County Jurisdiction),~~ New development other than additions to existing single-family detached houses ~~inside the Urban Growth Area~~ shall include tree coverage areas on a portion of the development tract. ~~except as indicated in Section 10.11.4, Reduction of Tree Coverage Requirements.~~

2. Tree coverage standards may be met either by preserving existing trees on the site, by planting replacement trees, or a combination of both.

3. The percentage of a tract which shall have tree coverage is as indicated in the table below. The total tree coverage area shown reflects the addition of replacement tree coverage area to the preserved tree coverage area shown. ~~Preserving existing trees on the site is preferable to a combination of preservation and planting and is reflected in the lower requirements.~~

Residential Development	
Preserved Tree Coverage Area (%)	**Total Tree Coverage Area Required (%)**
20	20
At least 15 but less than 20	23
At least 10 but less than 15	24
Less than 10	25
Nonresidential Development	
Preserved Tree Coverage Area (%)	**Total Tree Coverage Area Required (%)**
10	10
At least 8 but less than 10	13
At least 6 but less than 8	14
Less than 6	15

4. For the purposes of calculating tree coverage requirements, the water surface area of ponds, lakes and other water bodies (excluding stormwater control structures) shall be excluded from the total land area of the development tract.

5. ~~Any portion of a development tract that is required to be left undisturbed by some other requirement of the this ordinance shall be presumed to meet the requirements of this Section, so long as the area meets the minimum size threshold This may include~~ Any forested land in the floodway, floodway fringe (unless proposed to be filled or developed in accordance with Sec. 8.4.3B.2), preserved wetlands and wetland buffers, steep slope areas, stream buffers, Durham Natural Inventory Sites, and Major Transportation Corridor (MTC) buffers and any portion of the tract left undisturbed in order to create required perimeter buffers that satisfies the minimum size requirements established in Sec. 8.4.3B.2 below may be used as tree cover.

6. Tree preservation and tree replacement areas shall be shown on all preliminary plats, final plats, site plans~~, landscaping plans,~~ development plans, major special use permits and minor special use permits in order to clearly assign tree replacement responsibility to future owners. Tree preservation and tree replacement areas on any individual lot shall be clearly shown on all plot plans for the lot.

7. ~~Where practicable,~~ Tree coverage areas in new subdivisions shall be located in common open space or buffers required by other provisions of this Ordinance. ~~Where this is not practicable, tree coverage areas may be located on individual lots in the subdivision, provided that the root zone protection areas can be adequately protected and that the trees can be reasonably expected to survive the construction process.~~

8. Additions to development existing as of the effective date of this Ordinance shall provide tree coverage as a percentage of the redevelopment or disturbed area, whichever is greater.

9. Property owners ~~in developments other than single-family and duplex residential developments~~ shall be responsible for protecting and preserving tree preservation and tree replacement areas during and after the development process in accordance with standard horticultural practice and Sec. 8.3.3, Protection of Existing Vegetation. ~~Tree preservation areas located on single-~~

~~family and duplex lots shall not be deemed to create an easement or enforceable obligation on owners who occupy a dwelling subsequent to issuance of a Certificate of Compliance.~~

> ***Commentary:*** *Tree coverage requirements shall consider the size of the redevelopment and the amount of land disturbed during the redevelopment process. The amount of coverage required shall be calculated based on which of the two items above is larger.*

D. Preserved Tree Coverage

Tree preservation to meet the tree coverage standards in Sec. 8.3.2, Tree Coverage, shall meet the following requirements.

1. The provisions of Sec. 8.3.3, Protection of Existing Vegetation, shall be fulfilled.

2. The tree coverage area for a cluster ~~group~~ of trees ~~is~~ shall be determined by the exterior boundary of the total root protection zones ~~areas~~ for all of the trees in the cluster ~~group~~.

3. For parcels greater than one acre, no tree preservation area for a cluster ~~group~~ of trees may be counted toward meeting the tree coverage standard unless it includes a minimum of 1,000 square feet (or such smaller area as required by the Sec. 8.3.2C.3 above) and has no individual dimension of less than 25 feet.

4. For parcels one acre or less, no single tree preservation area for a cluster ~~group~~ of trees may be counted toward meeting the tree coverage standard unless it includes a minimum of 500 square feet (or such smaller area as required by Sec. 8.3.2C.3 above) and has no individual dimension less than 15 ~~20~~ feet.

5. At least 75% of the root protection zone for a cluster of trees shall be located on the subject site for it to be considered a protected cluster.

6. The tree coverage area for an individual tree is determined by the tree's root protection zone ~~area~~. At least 75% of the root protection zone for a tree shall be located on the subject site in order for that tree to count as preserved. Individual trees may be counted toward tree coverage credit provided that the tree's diameter is at least ten inches dbh or greater. ~~measured at a point 4½ inches above the ground.~~ Where specimen trees of 18 inches dbh or greater ~~in diameter~~ are preserved outside of other required buffers, tree coverage credit shall be granted at one and one-half times the size of the root protection zone ~~area~~.

7. Tree preservation areas shall be located in the areas listed in Sec. 8.3.2C.5 above. ~~floodway areas, floodway fringe areas, stream buffers, steep slope areas, wetlands and Durham Natural Inventory sites~~. Additional tree preservation areas may be located outside of these areas, in which case they ~~should~~ shall be located in order ~~to preserve areas of predominantly hardwood forest,~~ to preserve specimen trees and to preserve clusters ~~groupings~~ of trees that add to the aesthetic quality of the development as viewed from the public right-of-way.

8. At least 75% of the tree coverage included within any tree preservation area ~~must~~ shall be composed of ~~created by~~ trees with at least a two inch dbh as determined through use of landscape sampling pursuant to Sec. 9.3.3. ~~of greater than 2½-inch caliper~~.

9. All buildings shall be set back at least 10 feet from the edge of any preserved tree coverage area.

10. Preserved tree coverage areas shall not be used for active recreational purposes, except for walking paths and foot trails constructed with minimal disturbance of tree roots and existing vegetation provided a registered arborist has certified that the construction of the trail has been designed to minimize impact to the existing trees. No tree over 10 inches dbh shall be removed for the construction of trails.

E. Replacement Tree Coverage

Tree replacement to meet the tree coverage standards in Sec. 8.3.2, Tree Coverage, shall meet the following requirements.

1. For parcels greater than one acre, no tree replacement area may be counted toward meeting the tree coverage standard unless it includes a minimum of 1,000 square feet (or such smaller area as required by Sec. 8.3.2C.3 above) and has no individual dimension of less than 25 feet.

2. For parcels one acre or less, no tree replacement area may be counted toward meeting the tree coverage standard unless it includes a minimum of 500 square feet (or such smaller area as required by Sec. 8.3.2C.3 above) and has no individual dimension less than 15 ~~20~~ feet.

3. When replacement trees are provided in order to satisfy the requirements of Sec.8.3.2C, Tree Coverage, coverage credit shall be accrued in accordance with the following table. In meeting this standard, at least 50% of replacement trees shall be two and one-half inches dbh or greater. A minimum of 50% of replacement trees shall be large, maturing, hardwood species native to Durham County. ~~this region.~~

Hardwood Caliper (inches)	Non-Hardwood Height (feet)	Credit (square feet)
4	18 or over	275
3½	16 to 18	250
3	14 to 16	225
2½	12 to14	200
2	10 to12	175
1½	8 to 10	150
1	7 to 8	100
Less than 1	Less than 7	No credit

4. Tree replacement credit shall be calculated based on the required planting area for the proposed trees.

> ***EXAMPLE:*** *10 trees at 2½-inch caliper requires 2,000 square feet of planting area, and provides 2,000 square feet of replacement tree credits.*

5. The maximum permitted credit for a replacement tree shall be 275 square feet, regardless of the caliper or height of the tree.

~~The Development Review Board shall have the authority to approve replacement trees of different sizes or species in order to address unique site~~

~~conditions, allow design flexibility and to better meet the objectives of Section 10.11 Tree Coverage and Protection Standards.~~

6. Where evidence can be provided that a development tract is entirely in ~~pasture use~~ agriculture (other than forestry) and has been continuously maintained in such use since January 1, 1980, the tree coverage standard indicated in Sec. 8.3.2C, Tree Coverage, may be reduced by 33% and the replacement tree requirement may be entirely met with trees of any size greater than ~~one~~ two inches in caliper with tree coverage credit granted in accordance with the table in Sec. 8.3.2E, Replacement Tree Coverage. Such tree coverage requirement reductions shall not apply to nonresidential development. ~~and shall not be used in conjunction with any reduction indicated in 0, Reductions in Tree Coverage Requirement.~~

7. Replacement trees shall be planted before any Certificate of Compliance is issued; however, ~~for any lot other than an individual single-family or duplex residential lot,~~ the planting may be postponed to the appropriate season in accordance with the requirements of Sec. 9.11.1 and Sec. 9.11.2. ~~Request for Extension of Compliance with Landscaping Requirements.~~

~~Reduction of Tree Coverage Requirements~~

~~Durham is actively seeking more compact development in certain locations in order to support a more compact and efficient urban form, to support infill development, to take advantage of transit and to promote affordable housing. For these purposes, tree coverage requirements established in 8.3.2B.1, Tree Coverage may be reduced, as follows.~~

~~New developments shall be entitled to a reduction in the tree coverage requirement indicated in 8.3.2B.1, Tree Coverage based on the development intensity, as indicated in the following tables.~~

~~The tree coverage reductions indicated in the tables may be utilized only to the extent that the tree coverage requirement cannot be satisfied by tree preservation in the floodway, floodway fringe, preserved wetlands and wetland buffers, steep slope areas, stream buffers, and Major Transportation Corridor buffers.~~

~~Density Tree Coverage Reduction for Single-Family Development~~
~~Up to 4.4 Units/Acre No Reduction~~
~~4.41 to 5.5 Units/Acre 33 % Reduction~~
~~5.51+ Units/Acre 66 % Reduction~~
~~Reduction for Multifamily Development~~
~~Up to 12.00 Units/Acre No Reduction~~
~~12.01 to 16.00 Units/Acre 33 % Reduction~~
~~16.01 to 22.00 Units/Acre 66 % Reduction~~
~~22.01+ Units/Acre No Requirement~~
~~Reduction for Nonresidential Development~~
~~FAR 0.29 or Less No Reduction~~
~~FAR 0.30 to 0.49 33 % Reduction~~
~~FAR 0.50 to 0.99 66 % Reduction~~
~~FAR 1.0 and Greater No Requirement~~

~~Single family detached residential developments that qualify for the tree coverage reductions as indicated in the above table may satisfy the tree coverage requirement with trees of any size greater than one inch in caliper, with tree~~

~~coverage credit granted in accordance with the table in 8.3.2E, Replacement Tree Coverage.~~

~~Application of Tree Coverage Standards~~

~~After May 3, 1999 (City Jurisdiction) and May 10, 1999 (County Jurisdiction), all development and land disturbing activity shall be conducted in accordance with Section 10.11, Tree Coverage and Protection Standards, except as follows.~~

~~Additions to existing residential buildings on single-family residential lots of record recorded prior to May 3, 1999 (City Jurisdiction) and May 10, 1999 (County Jurisdiction) shall be exempt from the provisions of Section 10.11, Tree Coverage and Protection Standards.~~

~~Development and land disturbing activity shown on approved and continuously valid site plans, preliminary plats, final plats, development plans, minor special use permits and major special use permits may be constructed in accordance with those approved plans.~~

~~Development for which a building permit has been issued and remains continuously valid may be constructed in accordance with the standards in effect at the time of issuance.~~

8.3.3 Protection of Existing Vegetation

Any trees preserved on a development tract in order to meet Ordinance requirements or otherwise indicated to be preserved shall meet the following protection standards.

A. Protection measures to be used during grading and construction shall be specified on all grading, erosion control, and landscape plans.

B. Root protection zones ~~areas~~ shall be established around all trees to be preserved. The root protection zone ~~area are the greater of~~ shall either be a six-foot radius around the tree or a one foot radius for every inch of tree dbh, whichever is greater. ~~diameter measured at a point 4½ feet above the ground.~~

~~Root protection zones areas shall also be clearly shown on all site plans.~~

C. At the start of grading involving the lowering of the existing grade around a tree or stripping of topsoil, a clean, sharp, vertical cut shall be made at the edge of the tree save area at the same time as other erosion control measures are installed. The tree protection fencing shall be installed on the side of this cut farthest away from the tree trunk. This procedure shall be incorporated as a note on the grading and erosion control plans.

D. No storage of materials, dumping of waste materials, fill, or parking of equipment shall be allowed within the root protection zone ~~area~~, and no trespassing shall be allowed within the boundary of the root protection zone ~~area~~, and shall be so noted on the grading and erosion control plans and posted on the protection fence in both English and Spanish.

E. A tree protection fence constructed of a material resistant to degradation by sun, wind, and moisture for the duration of the construction, shall be installed at the same time as the erosion control measures, and shall remain in place until all construction is complete. Silt fencing shall not serve as tree protection fencing.

F. Tree protection fences shall be constructed in accordance with standards provided by the Planning Department, and shall be mounted on metal posts placed no further than ten feet apart.

G. Tree protection fencing signs shall be located so that they are visible from all directions. Such signs shall be placed at each end of the tree protection perimeter, and spaced a maximum of 100 feet on center thereafter. The signs shall read both "No Trespassing/Tree Protection Area" and "Prohibido Entrar/Zona Protectora Para Los Arboles."

H. This procedure shall be incorporated as a note on the grading and erosion control plans. Site plans and erosion control plans shall include a detail of the proposed tree protection fence and show its location.

I. All utility lines and drainage channels shall be minimized within the root protection zones ~~areas~~ of trees to be saved and preferably located adjacent to driveways and in groupings as allowed by good engineering practices.

~~Shrubs shall not be planted within the root protection zones areas of trees saved.~~
~~When the provisions of Sec. 9.3 Existing Vegetation Credits for Required Landscaping, are not fulfilled, existing trees will considered unprotected and may not be used to satisfy landscape requirements of Article 9, Landscaping and Buffers, or the tree coverage requirements of Sec. 8.3, Tree Coverage. and Protection Standards.~~

8.3.4 Clear-Cutting (City Only)

Properties shall not be clear-cut during the conduct of forestry activities. To maintain the visual character of the site from adjoining properties and right-of-way, a vegetated perimeter buffer shall be maintained while tree harvesting for forestry occurs. A 32-foot wide buffer of naturally existing vegetation shall be maintained along all boundaries of the property being forested that adjoin other properties. Along public rights-of-way, a 50-foot buffer of naturally existing vegetation shall be maintained, exclusive of areas required for access to the site. Site plans proposing development of properties that failed to maintain such a buffer during forestry activities shall be denied for a period of five years from the date of clearing.

~~Penalties for Destruction of Existing Vegetation~~
~~Any trees preserved on a development tract in order to meet ordinance requirements or otherwise indicated to be preserved shall meet the standards of 8.3.3, Protection of Existing Vegetation. Damaging or destroying any tree preservation area which is indicated on any site plan, development plan, preliminary plat, final plat, major special use permit or minor special use permit shall constitute a violation of the Durham Zoning Ordinance. However, damage or destruction of trees by an act of God shall not be subject to the provisions of Section 10.12, Penalties for Destruction of Existing Vegetation.~~

Sec. 8.4 Floodplain Protection Standards

8.4.1 Purpose Objectives

The primary purpose ~~objective~~ of the floodplain protection standards is to preserve and maintain the natural floodplain in an undisturbed vegetated state in order to maintain flood storage capacity, control stormwater, improve water quality and conserve plant and wildlife habitat.

8.4.2 Development Restricted ~~Prohibited~~ in the Floodway and Floodway Fringe

A. Development and land disturbing activity within the floodway and floodway fringe shall be prohibited, except as provided below, or allowed pursuant to a variance approved by the Board of Adjustment in accordance with Sec. 3.15, Variance. ~~in accordance with Section 16, Variances and Interpretations and Section 11.8, Variances.~~

B. Land within the floodway and floodway fringe ~~can~~ shall not serve to meet minimum lot size requirements, except in the Rural Tier and on property zoned RS-20 where at least 50% of the required lot area is located outside the floodway or floodway fringe. ~~if there is sufficient buildable area remaining on the tract.~~

8.4.3 Development Allowed in the Floodway and Floodway Fringe

A. Development Requiring Development Review Board Approval

Land in the floodway and floodway fringe may be used for the following purposes, provided that such uses are designed and constructed to minimize clearing, grading, erosion and water quality degradation and are in compliance with the Flood Damage Protection Ordinance.

1. Crossings by streets, driveways, utilities, sanitary sewer outfalls, culverts and railroads. Streets and driveways may run generally within and parallel to the stream (in the floodway and floodway fringe) only where no other access to the property is feasible.

2. Active and passive recreational activities.

3. Intakes, docks, utilities (including water and wastewater treatment, stormwater control and sedimentation and erosion control facilities), bridges, other public facilities and water-dependent structures.

4. Wetlands constructed or restored for mitigation purposes.

~~Public and private roads and sidewalks shall not count toward the allowable 10 percent of the floodway fringe on a tract that can be filled and/or used for development in accordance with Section 11.2.2 (4).~~

B. Development Requiring Governing Body Approval

1. Parking in the Floodway Fringe

Land in the floodway fringe may be used for up to 20% ~~25%~~of the parking required for the development on the tract: however, no more than ~~1/3~~~~rd~~ 20% of the floodway fringe land on any development tract shall be used for parking. Parking in the floodway fringe shall require site plan approval from the governing body. In considering the ~~major~~ site plan, the Development Review

Board and the governing body shall consider whether the proposed parking on the site is designed and arranged to minimize adverse environmental impact from placement of parking in the floodway fringe. ~~; and whether the proposed development would result in significant degradation of water quality, loss of significant wetlands, increase in sedimentation and erosion, increase in stormwater runoff, loss of significant plant and wildlife habitat or threats to public safety.~~

2. Fill or Development in the Floodway Fringe

In order to allow design flexibility to achieve higher quality site design and better utilization of the land adjacent to the floodway fringe, a property owner or developer may fill or use for development up to ten percent of the floodway fringe area contained within the boundaries of any development site provided that the ~~DRB~~ governing body finds that:

a. The proposed fill or development provides for a better balance between overall efficiency of the site design, and improved conservation elsewhere on the site ~~higher quality site design and better utilization of land adjacent to the floodway fringe~~ than would be possible without intrusion into the floodway fringe area; and

b. The proposed fill or development represents the minimum amount of floodway fringe intrusion to achieve this better balance ~~the high quality design~~.

> ***Commentary:*** *Intrusion within the floodway fringe may allow preservation of other significant resources on the site, and the governing body is empowered to review the balancing of these two concepts.*

~~Any uses, development or land disturbing activity allowed by Sec. 8.4, Floodplain Protection Standards shall be conducted in accordance with the requirements of the most recently updated Durham, NC City Flood Damage Protection Ordinance or the Durham, NC County Flood Damage Protection Ordinance, as applicable.~~

8.4.4 Density Credits

A. No credit shall be allowed for land in the floodway.

B. The amount of land in the floodway fringe may be credited for residential density on adjacent land in the same development ~~to the floodplain~~ at a rate of ~~100~~ 50% of that allowed by the zoning.

C. Density credits shall not apply in Conservation Subdivisions in accordance with Sec 6.2.4.

~~The amount of land in the floodway may be credited for residential density on land adjacent to the floodplain within the same project at a rate of 75 percent of that allowed by the zoning.~~

~~The approving authority shall determine the amount of land in the floodway and floodway fringe that may be credited for residential density on adjacent land and shall consider adopted land use plans, location in a transit corridor, environmental features, stormwater controls and other relevant features.~~

8.4.5 Variances

The Board of Adjustment may grant variances to the requirements of Sec. 8.4, Floodplain Protection Standards, in accordance with the provisions of Sec. 3.15, Variances. ~~Section 11.8, Variances and Section 16, Variances and Interpretations by the Board of Adjustment. However,~~ The Board of Adjustment ~~is~~ shall not be authorized to grant variances to the requirements of the ~~Durham, NC City~~ Flood Damage Protection Ordinance. ~~or the Durham, NC County Flood Damage Protection Ordinance. Exceptions to the provisions of the Durham, NC City Flood Damage Protection Ordinance shall be considered in accordance with the provisions of its Section 6-315, Procedures For Determining Exceptions to the Requirements. Exceptions to the provisions of the Durham, NC County Flood Damage Protection Ordinance shall be considered in accordance with the provisions of its Section 6-115, Procedures For Determining Exceptions to the Requirements.~~

Sec. 8.5 Stream Buffer Protection Standards

8.5.1 Purpose Objectives

The primary purpose ~~objective~~ of the stream buffer protection standards is to maintain land adjacent to streams in a ~~an undisturbed~~ vegetated state in order to enhance and maintain water quality, protect stream channel wetlands, minimize stormwater runoff, reduce sedimentation and erosion, conserve plant and wildlife habitat and protect wildlife movement corridors.

> ***Commentary:*** *Note that streams may have additional stream buffer requirements in accordance with Sec. 8.8, Watershed Protection Overlay Standards, Sec. 8.7, Neuse River Basin Requirements, Section 401 Water Quality Certification administered by the North Carolina Division of Water Quality, and related requirements within the jurisdiction of the US Environmental Protection Agency and US Army Corps of Engineers.*

8.5.2 Types of Stream Buffers

A. The stream buffer protection standards shall apply to intermittent streams, perennial streams, and naturally occurring ponds and lakes. Stream buffers shall be clearly indicated on all development plans, site plans, preliminary plats and final plats.~~, major special use permits and minor special use permits.~~

B. Where ~~a USGS topographic map and the Soil Survey~~ maps show a difference in stream type for a particular reach of stream, the map that shows the greater level of stream protection shall apply.

C. When a property owner or ~~developer~~ applicant believes that the appropriate ~~USGS or Soil Survey~~ maps are in error, the Development Review Board shall have the authority to determine the location or presence of the stream in accordance with stream location criteria adopted by the Development Review Board. ~~for purposes of meeting the requirements of Sec. 8.5, Stream Buffer Protection Standards.~~

8.5.3 Pond Removal

A. City

If a property owner or ~~developer~~ applicant proposes to remove a pond and the pond drains an area 25 acres or greater, a stream buffer of the size required on the stream immediately downstream of the pond shall be maintained along the portion of the stream located where the pond is to be removed.

B. County

If a property owner or applicant proposes to remove a pond and such removal is approved by the County Engineer or designee, a stream buffer of the size required on the stream immediately downstream of the pond shall be maintained along the portion of the stream located where the pond is to be removed.

8.5.4 Stream Buffer Size

Stream buffers shall apply on each side of the stream and shall begin at the most landward limit of ~~be measured from~~ the top of the ~~stream~~ bank perpendicular to the direction of stream flow. Stream buffers for both intermittent and perennial streams shall be a minimum of 50 feet in width.

8.5.5 Stream Buffer Use Limitations

A. To avoid a loss of effectiveness in protecting streams, the stream buffer shall remain in natural undisturbed vegetation in Suburban and Rural Tiers, except as provided by this section ~~Sec. 8.5, Stream Buffer Use Limitations~~ or allowed pursuant to a variance approved by the Board of Adjustment in accordance with Sec. 3.15, Variances. Within the Urban, Compact, and Downtown Tiers, stream buffers may be landscaped rather than left in an undisturbed state, at the discretion of the property-owner in accordance with an approved revegetation plan. ~~Section 16, Variances and Interpretations and Section 11.8, Variances.~~ Any use allowed by this section ~~8.5.5, Stream Buffer Use Limitations~~ shall be designed and constructed to minimize the amount of intrusion into the stream buffer and to minimize clearing, grading, erosion and water quality degradation.

B. Land within the stream buffer ~~can~~ shall not serve to meet minimum lot size requirements, except in the Rural Tier and on property zoned RS-20 where at least 50% of the lot is outside the stream buffer. ~~if there is sufficient buildable area remaining on the lot.~~

C. Buildings and other features that require grading and construction shall be set back at least ten feet from the edge of the stream buffer.

D. Crossings by streets, driveways, water and sanitary sewer lines, culverts, railroads, recreational features, intakes, docks, utilities, bridges or other facilities shall be allowed provided that they are designed to minimize the amount of intrusion into the stream buffer. ~~Streets and driveways~~ Such facilities may run generally within and parallel to the stream buffer only where no other access to the property is practical ~~feasible~~ and when their design minimizes the amount of intrusion of the stream buffer.

E. Stream buffers may ~~can~~ be used for passive recreational activities, such as ~~unpaved or paved~~ trails, provided that service facilities for such activities, including but not limited to parking, picnicking and sanitary facilities, are located outside of the stream buffer. ~~Water-oriented recreational facilities, such as boat or fishing piers, shall require an approved use permit from the Board of Adjustment.~~

F. Clearing and revegetating the stream buffer for the purposes of improving its pollutant removal efficiency may be permitted based upon a conclusive finding by the Development Review Board that such efficiency will be improved.

G. Stormwater control structures and temporary erosion control structures shall be considered utilities for the purposes of this section and may be allowed in stream buffers, provided that:

1. The property owner or applicant demonstrates to the satisfaction of the City Public Works Director ~~for stormwater control structures~~ or County Engineer, or their designees, as appropriate, ~~for erosion control structures~~ that such facilities cannot be practicably located outside of the stream buffer, and that any proposed stormwater control structure is sited and designed to minimize disturbance of the stream and stream buffer. Siting stormwater control structures away from the stream channel shall be considered ~~is~~ preferable to siting such structures in the stream channel;

2. Alternate methods of stormwater and erosion control shall be considered prior to approval of such structures in the stream buffers; and

3. A vegetated buffer of a width determined by the City Public Works Director or the County Engineer, or their designees, as appropriate, may be required around the stormwater control structures.

~~Any land disturbed for these structures shall be revegetated in accordance with a revegetation plan approved by the Development Review Board.~~

H. For development on lots of record created prior to January 1, 1997, septic system drain field repair areas may be allowed in stream buffers, provided that:

1. The intrusion into the stream buffer is the minimum necessary;

2. The intrusion shall not result in an undisturbed stream buffer less than 30 ~~20~~ feet; and

3. The property owner or applicant demonstrates to the satisfaction of the Durham County Health Department that the repair area cannot be located outside of the stream buffer.

I. Sanitary sewer lines, on an alignment generally parallel to the stream, may be allowed in stream buffers, provided that:

1. The property owner or applicant demonstrates to the satisfaction of the City Public Works Director or the County Engineer, or their designees, as appropriate, that the sanitary sewer lines cannot be practicably located outside of the stream buffer;

2. Design and construction specifications minimize damage to the stream and the possibility of line leakage; and

3. The sanitary sewer line is generally located at least 35 ~~15~~ feet from the top of the stream bank and the easement is no closer than 20 feet from the top of the bank.

~~The stream buffer intrusion and a plan for revegetating the stream buffer disturbance be approved by the Development Review Board.~~

J. ~~Inside the UGA~~ Except in the Rural Tier, perennial streams may be piped, thereby exempting the piped section of the stream from stream buffer requirements, only when allowed by Sec. 8.5.5D or when the Board of Adjustment issues a variance in accordance with the provisions of Sec. 3.15, Variances and makes the following findings in addition to the findings required in Sec. 3.15.10. ~~Section 16, Variances and Interpretations.~~

1. The site plan proposing perennial stream piping includes features on the site, such as best management practices, that provide water quality benefits at least equal to those of the stream buffer; and

2. The proposed perennial stream piping is not substantially in conflict with the other objectives of this section.

K. ~~Inside the UGA~~ Except in the Rural Tier, intermittent streams may be piped, thereby exempting the piped section of the stream from stream buffer requirements, only ~~when allowed by 8.5.5 or~~ when the Development Review Board determines that:

1. The site plan proposing intermittent stream piping includes features on the site, such as best management practices, that provide water quality benefits at least equal to those of the stream buffer; and

2. The proposed intermittent stream piping is not substantially in conflict with the other objectives of this section. ~~Sec. 8.5, Stream Buffer Protection Standards~~.

L. Where stream piping is approved by the Development Review Board or the Board of Adjustment, a vegetated buffer area or other device approved by the City Public Works Director or County Engineer, or their designee, as appropriate, shall be provided at any intake structure. All buffers and physical improvements related to the stream piping are located entirely on the site or on easements adjacent to the site.

M. Site plan approval by the Development Review Board shall be required for any of the stream buffer intrusions described in paragraphs A through L above. When any of the activities described above involves land clearing, the cleared area shall be revegetated in a manner described on the site plan. However, where a site plan is not required by any other provision of this Ordinance, the City Public Works Director or County Engineer, or their designee, as appropriate, is authorized to approve plans for stream piping and the County Engineer, or designee is authorized to approve plans for erosion control structures in stream buffers.

Sec. 8.6 Water Supply Reservoir Buffer

8.6.1 Reservoir Buffer Standards

A. A ~~250-foot~~ reservoir buffer shall be maintained from the normal pool of all water supply reservoirs as shown in the table below, except that the buffer around any reservoir shall not apply to land that does not naturally drain to that reservoir.

Reservoir	Buffer Width
Lake Michie	250 feet
Little River Reservoir	250 feet
Jordan Reservoir	250 feet[1]
Falls Reservoir	250 feet[1]

[1] On nonresidential uses, the buffer width shall extend to 1,000 feet in accordance with Sec. 4.11.4.

B. Reservoir buffers shall remain in natural undisturbed vegetation, except for intrusions allowed pursuant to Sec. 8.5.5, Stream Buffer Use Limitations. ~~below~~.

C. At the request of a property owner, the governing body may reduce the reservoir buffer requirements through the issuance of a Major Special Use Permit ~~on a case-by-case basis~~, whenever it determines that:

1. The reservoir buffer would result in exceptional hardship, depriving the property owner of all reasonable use of the property.

2. The proposed intrusion into the reservoir buffer is the minimum amount necessary to relieve that exceptional hardship.

D. In making its determination, the governing body shall consider topography, water quality protection, erosion potential, surrounding uses and the size of the parcel. A site plan shall be required and reasonable conditions may be attached to any modification of the reservoir buffer.

Sec. 8.7 Neuse River Basin Requirements

8.7.1 Purpose

This section is intended to protect water quality from additional nitrogen pollution generated from new development and preserve existing stream ~~riparian~~ buffers in the Neuse River Basin. To achieve these purposes, this subsection establishes performance standards that limit the amount of nitrogen in stormwater runoff that control stormwater peak runoff rates that promote the use of best management practices, and that protect and preserve existing stream ~~riparian~~ buffers.

8.7.2 Applicability

All proposed developments within the Neuse River Basin that meet any of the criteria listed below shall demonstrate compliance with the requirements of this section prior to the approval of a subdivision plat or site plan. ~~of any type, comply with the requirements of this section.~~

A. Residential development (for single-family homes or duplexes) or recreational facilities that disturb more than one acre of land; ~~in order to establish, expand, or modify a single-family or duplex residential development or a recreational facility; or~~

B. Multifamily residential, public or civic, commercial, office, or industrial facilities that disturb more than one-half acre of land; ~~in order to establish, expand, or modify a multifamily residential development or a commercial, industrial, or institutional facility;~~ or

C. Any development that includes a stormwater collection system.

8.7.3 Exemptions

Proposed developments consisting solely of agriculture, mining, or forestry activities shall not be subject to review under this section.

8.7.4 Nitrogen and Peak Runoff Control Requirements

~~Standards~~

~~All new development must achieve a nitrogen export less than or equal to 3.6 pounds per acre per year. If the development contributes more than 3.6 pounds per acre per year of nitrogen, the requirements and options shown in the table below shall apply.~~

All development plans, site plans, and preliminary plats shall comply with the Neuse River Basin Requirements found in the City or County Stormwater Ordinances, as applicable.

~~Single-Family or Duplex~~	~~Multifamily, Public or Civic, Commercial, Office or Industrial~~
~~**If the Computed Export is Less than 6.0 lbs/ac/yr**~~ ~~The applicant may shall either:~~ ~~1. Install BMPs to remove enough nitrogen to bring the nitrogen export down to 3.6 lbs/ac/yr.~~ ~~2. Pay a one-time offset payment to the North Carolina Wetland Restoration Fund of $330/lb to bring the nitrogen export down to the 3.6 lbs/ac./yr.~~ ~~3. Do a combination of BMPs and offset payment to achieve a 3.6 lbs/ac/yr export.~~	~~**If the Computed Export is Less than 10.0 lbs/ac/yr**~~ ~~The applicant shall may either:~~ ~~1. Install BMPs to remove enough nitrogen to bring the nitrogen export down to 3.6 lbs/ac/yr.~~ ~~2. Pay a one-time offset payment to the North Carolina Wetland Restoration Fund of $330/lb to bring the nitrogen export down to the 3.6 lbs/ac./yr.~~ ~~3. Do a combination of BMPs and offset payment to achieve a 3.6 lbs/ac/yr export.~~
~~**If the Computed Export is 6.0 lbs/ac/yr or More**~~ ~~The applicant must shall:~~ ~~Use onsite BMPs to bring the development's nitrogen export down to 6.0 lbs/ac/yr. The applicant may use one of the three options above to achieve the reduction between 6.0 and 3.6 lbs/ac/yr.~~	~~**If the Computed Export is10.0 lbs/ac/yr or More**~~ ~~The applicant must shall:~~ ~~Use onsite BMPs to bring the development's nitrogen export down to 10.0 lbs/ac/yr. The applicant may use one of the three options above to achieve the reduction between 10 and 3.6 lbs/ac/yr.~~

~~Procedures~~

~~The nitrogen export calculations shall be made using procedures approved by the City Public Works Director. Approved methodologies for calculating nitrogen export from new development may be obtained from the Public Works Department, Storm Water Services Division. The nitrogen export shall be calculated in pounds per acre per year (lb/ac/yr).~~

~~Time of Submission~~

~~The applicant shall submit nitrogen export calculations for the pre-development and post development conditions and demonstration of compliance with this Section, prior to the approval of a subdivision or site plan of any type, as part of plan submission.~~

~~Approved BMPs~~

~~The best management practices that may be used to reduce nitrogen in stormwater runoff include the following: wet detention ponds, constructed wetlands, open channel practices (water quality swales), riparian buffers, vegetated filter strips with level spreader, bioretention cells (rain gardens), and sand filters. The BMP nitrogen removal efficiencies shall be as approved by the City Public Works Director~~

~~Proprietary or demonstration BMPs must shall be approved by the North Carolina Division of Water Quality ("the Division") for general use and must be designed in accordance with any guidelines established by the Division, and any manufacturer's guidelines and specifications that are not inconsistent with the Division's guidelines.~~

~~Peak Runoff Control Requirements~~

~~Standards~~

~~New development may not increase the post-development peak runoff rate from the one-year storm over the pre-development peak runoff rate by more than 10%. If the post-development peak runoff rate does increase by more than 10%, stormwater management facilities shall be provided such that there is no net increase.~~

~~Procedures~~

~~The peak flow calculations shall be made using procedures approved by the City Public Works Director. pproved methods include the peak discharge method for the one-year, 24-hour storm as described in "Urban Hydrology for Small Watersheds," Technical Release Number 55 (TR-55) published by USDA Soil Conservation Service.~~

~~Time of Submission~~

~~The applicant shall submit peak flow calculations for the pre-development and post-evelopment conditions, prior to the approval of a subdivision or site plan of any type, as part of plan submission.~~

~~Exemptions~~

~~New development shall be exempted from these peak runoff control requirements if the overall impervious surface within the development is less than 15% and the remaining pervious portions of the site are utilized to the maximum extent practical to convey and control the stormwater runoff, as determined by the City Stormwater Services Division.~~

~~BMP Maintenance~~

~~All structural BMPs shall be designed and maintained in accordance with Sec. 8.8.2D, Stormwater Control Requirements.~~

8.7.5 Compliance with Neuse Buffer Requirements

A. The applicant shall show, on ~~subdivision and~~ development plans, site plans, and preliminary and final plats ~~of all types~~, 50-foot wide ~~riparian~~ buffers directly adjacent to surface waters (perennial and intermittent streams, lakes, ponds and estuaries) in the Neuse River Basin. For the purposes of this section, ~~8.6, a~~ surface water shall be present if the feature is shown on either the most recent USGS 7½-minute quadrangle topographic maps or the most recent USDA Soil Survey unless the North Carolina Division of Water Quality has determined that no surface water is present. ~~of Durham County, North Carolina.~~

B. For intermittent and perennial streams as defined in Sec. 8.7.5A, above, the buffer shall begin at the most landward limit of the top of bank and extend landward on all sides of the surface water, measured horizontally on a line perpendicular to the surface water.

C. For ponds, lakes, and estuaries, the buffer shall begin at the most landward limit of the normal water level and extend landward, measured horizontally on a line perpendicular to the surface water.

D. The applicant shall demonstrate that the new development does not impact the Neuse buffer or that the North Carolina Division of Water Quality has approved the activity that impacts the Neuse buffer.

Sec. 8.8 Watershed Protection Overlay Standards

8.8.1 Applicability

The watershed protection overlay standards of this section shall apply to the Watershed Protection Overlay as set forth in Sec. 4.11.

~~The following requirements shall apply to any commercial , office, industrial and research uses permitted in Section 5.5.5.1 Permitted Uses, above, that manufacture, distribute, warehouse for distribution, store for on-site use or produce as a waste product nuclear materials or substantial quantities of hazardous materials.~~

8.8.2 General Requirements

A. Minimum Lot Size

1. ~~All new subdivisions, whether by plat or by deed, shall be subject to~~ In all Watershed Protection Overlays, except F/J-B and E-B, the minimum lot sizes indicated in the following table shall be applied in all new subdivisions unless the subdivision uses the cluster provision in accordance with Sec. 6.7.~~, except for cluster developments, which shall be subject to the requirements of Section 6.1.2B.4, 5.5.10Cluster Developments. However,~~

Overlay	Minimum Lot Size Rural Tier	Suburban Tier
M/LR-A	3 acres[1]	20,000 square feet ~~2 acres~~
M/LR-B	3 acres[1]	20,000 square feet ~~2 acres~~
F/J-A	3 acres[1]	1 acre ~~Within one-half mile of the normal pool = 2 acres~~ ~~Between one-half and one mile from the normal pool:~~ ~~Inside the UGA, 1 acre; Outside the UGA, 2 acres~~
~~F/J-B,~~ ~~E-B~~		~~Inside the UGA= 20,000 square feet~~ ~~Outside the UGA = 80,000 square feet.~~
E-A	Not Applicable	20,000 square feet

[1]Lots as small as 20,000 square feet may be permitted through use of a Conservation Subdivision per Sec. 6.2.4.

2. In the F/J-B and E-B overlays, ~~districts inside the Urban Growth Area,~~ developers of single-family subdivisions shall comply with the requirements of the underlying zoning district. ~~may elect at the time of preliminary plat approval to not follow these minimum lot size requirements, in which case the impervious surface limits indicated in Sec. B, Impervious Surface Limits, as well as the underlying zoning district requirement, shall control development intensity.~~

~~Notwithstanding the following table, where spray irrigation systems are to be used for wastewater treatment, the minimum lot size in any Watershed District shall be five acres.~~

B. Impervious Surface Limits

1. Any development in a Watershed Protection Overlay ~~Districts~~ shall be subject to limits on the amount of impervious surfaces permitted in accordance with the following table. ~~In all Watershed Districts,~~ Development plans, site plans,

preliminary plats, and final plats~~, unified development plans and major special use permit plans~~ shall clearly ~~show~~ identify the amount of existing and proposed impervious surfaces.

Overlay	Low Density Option Impervious Surface Limit	High Density Option Impervious Surface Limit
M/LR-A	6%	Not permitted
M/LR-B	6%	Not permitted
F/J-A	Within one-half mile of the normal pool: 6%; Between one-half and one mile from the normal pool: 9%	Not permitted in the Rural Tier~~ outside the UGA~~. 40% For all areas outside of the Rural Tier and for those uses allowed in Sec. 4.11.4. ~~Not permitted inside the UGA, except as indicated in Permitted Uses, where the maximum impervious surfaces shall be 40 percent. All permitted nonresidential uses inside the UGA require use of High Density Option stormwater controls.~~
F/J-B, E-B	~~Inside the UGA, 24 percent outside the UGA, 12 percent~~ 24%	~~Inside the UGA, 70 percent~~ ~~Not permitted outside the UGA~~ 70%
E-A	24%	Not permitted

2. In the Rural Tier, the impervious surface limit provisions of this section may be satisfied by impervious surface credit transfer. Credit for the impervious surfaces allowed on one or more parcels ("donor parcels") may be transferred to non-contiguous parcels ("receiving parcels"), such that the amount of impervious surface available for a development project would be the total of what is normally allowed on the receiving parcel plus what is transferred from the donor parcel(s). Impervious surface credit transfer is subject to the following provisions:

a. The donor parcel and receiving parcel shall be located within the same water supply watershed.

b. The impervious surface credit transfer shall not be from a donor parcel in Area B to any receiving parcel in Area A.

c. The portion of the donor parcel which is restricted from development as part of the impervious surface credit transfer shall remain in a vegetated or natural state or used for crop production or pasture provided that best management practices (BMPs) as developed by the Soil and Water Conservation District are utilized. The portion of the donor site restricted from development shall be protected from all future development through use of a permanent conservation easement in favor of either:

(1) Durham County; or

(2) A land trust or similar conservation-oriented non-profit organization with legal authority to accept such easements (the organization shall be bona fide and in perpetual existence and the conveyance instruments shall contain an appropriate provision for retransfer to the County in the event the organization becomes unable to carry out its functions). If the entity accepting the easement is not the County,

then a third right of enforcement favoring the County shall be included in the easement.

d. The impervious surface credit transfer shall be reviewed and approved through use of the site plan process pursuant to Sec. 3.7.

C. Stormwater Control Requirements

~~High Density Option~~

Where development ~~in F/J-A, F/J-B and E-B districts~~ uses the High Density Option, engineered stormwater controls shall be used to control stormwater runoff from the first inch of rainfall in order to meet water quality concerns.

D. Ownership, Design and Maintenance of Engineered Stormwater Controls

1. Unless otherwise approved, ownership of the engineered stormwater controls shall remain with the property owner or a property owner's association, which shall be responsible for the continued care and maintenance of such controls. ~~Failure to properly maintain such controls in accordance with the agreement in 5.5.7.2.b, below, shall constitute a violation of this ordinance and shall subject the owner to all civil and criminal penalties provided under law.~~

2. Engineered stormwater controls shall be designed and constructed in accordance with standards and specifications established by the ~~Durham~~ City Public Works Director or County Engineer, or their designees, as appropriate. ~~No building permit shall be issued for any structure within a site proposed for development under the High Density Option until the Durham City Engineer, or their designees, has approved plans and specifications for the proposed engineered stormwater controls.~~

3. No final plat shall be approved, or if no final plat is required, no construction drawings shall be approved for a site proposed for development, until:

a. The City Public Works Director or County Engineer, or their designees, as appropriate, has approved plans and specifications for the proposed engineered stormwater controls and the property owner has entered into an Operation and Maintenance Agreement with the City or County, as appropriate, in accordance with the terms established by either the City Public Works Director or County Engineer, or their designees, as appropriate; and

b. The property owner has posted a performance bond or other surety instrument satisfactory to the City or County, as appropriate, in an amount determined by the City Public Works Director or County Engineer, or their designees, as appropriate to assure maintenance, repair, or reconstruction necessary for adequate performance of the engineered stormwater controls.

4. No certificate of compliance shall be issued for any structure constructed within a site proposed for development until the City Public Works Director or County Engineer, or their designees, as appropriate, has approved construction of the engineered stormwater controls and after review of submitted "as-built" drawings.

~~No occupancy permit shall be issued for any structure constructed within a site proposed for development under the High Density Option until:~~

~~The Durham City Engineer, or their designees, has approved construction of the engineered stormwater controls~~
~~The property owner has posted a performance bond or other surety instrument satisfactory to the City of Durham or Durham County, as appropriate, in an amount determined by the Durham City Engineer, or their designees, to assure maintenance, repair or reconstruction necessary for adequate performance of the engineered stormwater controls.~~
~~The property owner has entered into an Operation and Maintenance Agreement with the City of Durham or Durham County, as appropriate, in accordance with terms established by the Durham City Engineer, or their designees, and~~

E. Stream Buffers

Stream buffers subject to the use limitations of Sec. 8.5.5 shall apply to all perennial and intermittent streams as defined in Sec. 8.5.2 in a Watershed Protection Overlay ~~Districts~~. ~~Stream buffer widths apply to each side of the stream measured from the top of the bank.~~

Overlay	Perennial Stream Buffer Width	Intermittent Stream Buffer Width
M/LR-A	150 feet	50 feet
M/LR-B	150 feet	50 feet
F/J-A	150 feet	~~*County Jurisdiction:*~~ ~~Outside of the UGA,~~ 100 feet ~~Inside of the UGA, 150 feet.~~ ~~*City Jurisdiction:*~~ ~~50 feet; inside UGA, 100 feet.~~
F/J-B, E-B	100 feet	50 feet High Density Option 100 feet
E-A	150 feet	50 feet

~~*The width of stream buffers in the Falls Reservoir Watershed Protection Districts shall be the entire width of the 100-year floodplain, as indicated on the most current FEMA flood hazard boundary map, or the widths indicated in the following table, whichever is greater.~~

F. Wastewater Treatment and Facilities

1. Wastewater Treatment

Except as indicated below, wastewater treatment facilities shall be prohibited in all Watershed Protection Overlays ~~Districts, the following wastewater treatment facilities shall be prohibited~~.

~~New public or private wastewater treatment facilities; and~~
~~Community wastewater treatment facilities of any kind.~~

a. ~~However,~~ Individual on-site ground absorption systems shall be permitted, subject to the approval of the Durham County Health Department or the State of North Carolina, as applicable.

b. ~~In all Watershed Districts,~~ A spray irrigation wastewater treatment system to serve a single-family house shall be permitted, provided that:

(1) The owner enters into a written agreement with the Durham County Health Department which:

(a) Provides for Health Department access to the property for the purpose of monitoring the system during its construction and operation; and

(b) Provides that the owner and certified operator shall provide to the Health Department copies of any and all applications, plans, permits, reports and any other documents concerning but not limited to the permitting, system, design, construction, operation, monitoring or repair of the system.

(2) The owner shall not act as the certified operator for a spray irrigation system to be installed on his or her property.

c. Publicly-owned wastewater treatment facilities, and replacement and expansions of such facilities, shall be allowed in F/J-B and E-B overlays. ~~Districts~~.

d. Wastewater treatment facilities, either private or the extension of public facilities, may be permitted in the F/J-A overlay through the issuance of a Major Special Use Permit (M) pursuant to Sec. 3.9, provided that:

(1) The system will serve a development that is approved as a Conservation Subdivision pursuant to Sec. 6.2.4 or that satisfies the design requirements for such subdivisions;

(2) The facilities are licensed or permitted by the State of North Carolina, and the system operator is licensed by the State of North Carolina. The licensed operator shall inspect the plant daily with the exception of weekends and holidays to determine that the plant is operating adequately. All monthly reports that are sent tot the State of North Carolina shall be copied to the Durham Environmental Health Director;

(3) The facilities shall be non-discharge, meet North Carolina reuse standards, including, but not limited to, separating liquids and solids, and have permanent standby power sufficient to ensure normal operation in the event of a power failure;

(4) The developer of the system (if a private system) provides a performance bond equal to at least 50% of the cost of the replacement of the system or $100,000, whichever is greater, in the event that the operator of the system ceases to provide service or maintenance;

(5) The developer (or his/her successor) shall provide and maintain catastrophic property insurance to cover 100% of the replacement cost of the system; and,

(6) The approving authority makes a finding that the wastewater system proposed by the developer provides improved treatment over what would be provided through the use of an on-site ground absorption or spray irrigation wastewater treatment system.

To assist the approving authority in making this finding, the applicant shall provide the approving authority with certifications from the state regarding the performance of the proposed facility

relative to on-site systems. If such certification is not available or cannot be provided in a timely fashion, the applicant shall pay for a third party expert technical review of the proposed system to ensure that it will meet this standard.

2. Sanitary Sewer Services

a. Except in the Rural Tier ~~Inside the UGA~~, public and private sanitary sewer lines, force mains, and pump stations shall be permitted within all Watershed Protection Overlays ~~Districts~~. ~~However,~~ Public and private pump stations shall be equipped with the following safety features:

(1) Battery-backed alarm systems activated by pump failure or power outage, connected by an automatic dialer to a 24-hour maintenance service approved by the City Public Works Director or County Engineer, or their designees, as appropriate.

(2) Provision for connection of a portable generator. The City Public Works Director or County Engineer, or their designees, as appropriate, ~~shall consider on a case-by-case basis and~~ may require the pump station to be equipped with on-site, stand-by power.

b. ~~County Jurisdiction:~~ Within the Rural Tier, ~~Outside of the UGA, no~~ new public or private sanitary sewer lines or outfalls, including necessary force mains and pump stations, may ~~shall~~ be permitted within the Watershed Protection Overlays ~~Districts, except that,~~ subject to City Council or ~~and~~ Board of ~~County~~ Commissioners approval, as appropriate:

(1) ~~sewer lines and any necessary force mains and pump stations may be extended~~ Only to serve an existing use or structure for which a health hazard has been documented by the ~~Durham~~ County Health Department or the State of North Carolina; or

(2) If associated with a wastewater treatment facility permitted pursuant to Section 8.8.2F.1.d.

c. In considering such extensions, all reasonable alternatives shall be considered prior to a decision to extend the sewer services. All service connections, installed in accordance with the North Carolina Plumbing Code, shall be permitted only in accordance with Durham City Code, Sections 23-80 through 23-83.

G. Hazardous and Nuclear Materials

1. Prior to site plan approval, an Emergency Contingency Plan shall be prepared and submitted through the Planning Department to ~~the Emergency Services Director,~~ the Durham County Fire Marshall and the ~~City~~ Environmental Resources Director ~~of Water Resources~~ for review and approval. The Emergency Contingency Plan shall be prepared in accordance with the requirements in the Superfund Amendments and Reauthorization Act (SARA), Title III and shall be updated annually. In addition, the Emergency Contingency Plan shall include:

a. A plan for the site showing buildings and the locations of points of storage, transfer and use of nuclear and hazardous materials;

b. A list of nuclear and hazardous materials kept on-site in any ~~less than substantial as well as substantial~~ quantities;

c. The location of spill control valves on any bridges and causeways; and

d. The person responsible for on-site spill control and containment, and the appropriate means of contacting that person on a 24-hour basis.

2. Any container or tank used to store hazardous materials shall be equipped with leak detection devices and shall be double-walled or have other secondary containment features.

3. Points of storage, transfer and use of substantial quantities of hazardous materials shall be protected by a dike or comparable containment structure, constructed of a material resistant to hazardous material the dike or structure is designed to contain. The dike or structure shall be sized to handle at least the maximum amount of material to be stored or used and shall be constructed and installed in a manner to exclude rainwater and stormwater runoff.

4. All floor drains that could collect hazardous materials shall be connected to a corrosion resistant tank or catch basin sized to handle the maximum amount of hazardous material to be stored or used. These floor drains shall not be open to the site's natural drainage system and discharges to the site's storm drainage system or to adjacent surface waters shall be prohibited.

5. Points of storage, transfer and use of hazardous or nuclear materials shall have roof coverage.

8.8.3 Exceptions

~~After December 31, 1993,~~ All development within Watershed Protection Overlays ~~Districts~~ shall be subject to the restrictions in this section, with the following exceptions:

A. Existing Development

For the purposes of this section, existing development shall be considered to include ~~be~~ any impervious surfaces constructed before January 1, 1994. ~~Existing development shall be exempt from the requirements of this Section, except that~~ All new uses and activities and all expansions of previously-existing uses and activities shall conform to Sec. 4.11.4, Nonresidential Land Use Restrictions and Sec. 8.8.2, General Requirements. ~~Nonresidential Performance Standards. However, such development shall comply with the watershed protection regulations, if any, in effect at the time a building permit was issued for the development.~~

~~Expansions of any existing development and redevelopment shall be subject to the requirements of this Section if such expansion or rebuilding activity result in a net increase in the impervious surfaces of the development.~~

B. Existing Single-Family Lots

1. New construction and additions to existing residential buildings on ~~legal nonconforming~~ single-family residential lots recorded prior to January 1, 1994 s~~hall be exempt from the stream buffer, minimum lot size and impervious surface provisions of this ordinance. New construction and additions on such lots~~ shall be constructed in accordance with the watershed protection regulations, if any, in effect at the time the lot was created.

2. ~~However~~, Single owners of multiple adjacent lots that do not comply with the minimum lot size indicated in Sec. 8.8.2A, Minimum Lot Size, shall be required to recombine those nonconforming lots in a manner to create conforming lots

and, in these cases, the provisions of this section shall apply. ~~However,~~ If multiple adjacent nonconforming lots ~~are~~ were in single ownership on Feb 15, 1997 for the City jurisdiction and August 25, 1997 for the County jurisdiction, notwithstanding any transfers occurring after such date, such lots ~~must~~ shall be recombined to create lots that conform with the provisions of this section.

~~Valid Building Permit~~
~~Development for which a building permit has been issued and remains continuously valid may be constructed in accordance with the watershed protection restrictions, if any, that were in effect on the date of building permit approval.~~

C. Stormwater Control Exemptions

~~Where~~ Proposed development projects ~~on lots recorded prior to January 1, 1994 inside the UGA~~ not in the Rural Tier, and in F/J-B or E-B overlays ~~districts~~ involving less than one acre cumulatively, of land disturbing activity~~, the minimum lot sizes indicated in 5.5.5.4 Minimum Lot Size and~~ shall be exempt from the stormwater control requirements indicated in this Section. ~~, Stormwater Control Requirements shall not apply. In these cases, the minimum lot size shall be controlled by the underlying zoning. The Durham County Sedimentation and Erosion Control Officer shall determine how much of any proposed development activity shall constitute land disturbing activity.~~

8.8.4 Approval Process

Any development utilizing the High Density Option within the F/J-A overlay shall ~~and any cluster development~~ require site plan approval by the appropriate governing body. ~~Site plans for such uses shall conform to the site plan requirements in Section 3.17 Site Plans. Minor amendments to approved site plans for development in Watershed Districts may be approved by the Development Review Board.~~

8.8.5 Changes to Tier Boundaries

~~City or County shall not extend the Urban Growth Area~~ The City or County shall not extend the Urban or Suburban Tier boundaries ~~,~~ further into the M/LR-A or F/J-A overlays. ~~districts~~.

Sec. 8.9 Steep Slope Protection Standards

8.9.1 Purpose

The primary ~~objectives~~ purpose for the slope protection standards ~~are~~ is to minimize grading, land instability and the removal of vegetation in order to:

A. Protect the quality of wetlands and water courses below the slope from increased sedimentation;

B. Protect steep slope plant and animal habitat from disturbance and development; and

C. Preserve the aesthetic quality of the natural terrain.

8.9.2 Steep Slope Areas

A. Slope is the relationship of vertical rise to horizontal run, expressed as a percentage. Steep slope areas shall be defined as land areas that:

1. Have a grade of 25% or more;

2. Have an area of 5,000 ~~10,000~~ square feet or greater; and

3. Are located within 200 feet of any floodway fringe or perennial stream or within 100 feet of an intermittent stream.

B. Steep slope areas refer to natural grades and shall not include man-made grades. Slope calculations shall use the smallest contour interval for which maps are available. Steep slope areas shall be determined irrespective of tract boundaries.

C. Steep slope areas shall be clearly indicated on all site plans, development plans, preliminary plats, final plats, major special use permits and minor special use permits. When a property owner or developer believes that the presence or location of a steep slope area is different than what is shown on the appropriate topographic map, the Development Review Board shall have the authority to determine the location or presence of the moderate or steep slope area for purposes of meeting the requirements of this section.

8.9.3 Steep Slope Development Limitations

Development and land disturbing activity on steep slope areas shall be conducted only in accordance with the following requirements. Compliance with these requirements shall be determined by the approving authority.

A. Development shall be designed and constructed in order to minimize disturbance to the natural landform as much as possible. Development shall demonstrate appropriate terrain-adaptive design and construction techniques. ~~Extensive grading shall be avoided.~~ An inability to design a particular development allowed by the underlying zone without significant disturbance to the natural landform may indicate~~s~~ that the site should not accommodate the full amount of proposed development. Alternate site design and construction measures shall be ~~are~~ encouraged to mitigate the effects of development on steep slopes. The grade of reconstructed slopes shall not exceed 50%. Non-load bearing retaining walls shall be encouraged in order to reduce the amount of disturbance to the natural slope.

B. In order to accommodate building placement on steep slope areas, ~~front~~ street and side yard setbacks on lots on the interior of the development may be reduced by up to 50% by ~~at the discretion of~~ the Development Review Board.

C. Sedimentation and erosion control shall be provided during and after construction consistent with the requirements of the ~~Durham County and City of~~ Durham Sedimentation and Erosion Control Ordinance, Section 14-57 Design and Performance Standards.~~, Subsection (b).~~

D. On any tract proposed for construction, no more than 15% of the steep slope area on the tract shall be graded. For purposes of this calculation, the land areas of individual steep slope areas on the tract shall be added together to establish the total steep slope area for the tract.

E. Development shall be designed and arranged in order to minimize the impact of street construction on steep slope areas. Proposed right-of-way for major thoroughfares, minor thoroughfares and collector streets shall be exempt from the steep slope area grading limits of this section, provided that the Development Review Board determines that proposed rights-of-way are designed and arranged in order to minimize the impact on steep slope areas.

8.9.4 Density Credits

The amount of land designated as steep slopes may be credited for residential density on adjacent land in the same development at a rate of 15% of that allowed by the zoning.

Sec. 8.10 Wetlands Protection Standards

8.10.1 Purpose

The primary ~~objective~~ purpose of the wetlands protection standards is to conserve and maintain natural wetlands in an undisturbed vegetated state in order to provide storage of stormwater runoff, minimize degradation of preserved wetlands from the impacts of adjacent development, improve water quality and preserve plant and wildlife habitat.

8.10.2 Application of Wetlands Protection

The City and County acknowledge the pre-eminence of the Federal and State governments with regard to the identification and regulation of wetlands. Accordingly, the standards contained within this section shall not duplicate the requirements of the US Army Corps of Engineers (the Corps) or the North Carolina Department of Natural Resources, Division of Water Quality (DWQ), but shall require the buffering of wetland areas, identified by these agencies, on development plans, site plans, preliminary plats, and final plats.

~~A wetland buffer shall apply to any wetland area that is within the jurisdiction of the US Army Corps of Engineers and identified on site plans, development plans, preliminary plats, final plats, major special use permits and minor special use permits.~~

8.10.3 Exemptions from Wetland Buffer Requirements

A. The wetland buffer shall not apply to any wetland approved for dredging or filling under a Section 404 Permit issued by the Corps or a Section 401 Water Quality Certification issued by the DWQ.

B. The wetland buffer shall not apply to wetland areas associated with man-made ponds or man-made drainage ditches.

C. The wetland buffer shall not apply to any retained wetland area less than one acre in size.

~~The wetland buffer shall not apply to any wetland area associated with a minor subdivision. as defined in Section 2C, Durham Merged Subdivision Ordinance.~~

8.10.4 Wetland Buffer Width

A. The wetland buffer shall be provided along the perimeter boundary of the wetland area and shall be at least 25 feet in width. ~~The wetland buffer shall remain in natural undisturbed vegetation.~~

B. ~~However,~~ The approving authority may reduce the wetland buffer to ten feet in width, provided it determines that the proposed development includes site features or will employ construction management techniques to provide at least a comparable level of protection for the wetland area. Such site features and construction management techniques shall include but not be limited to additional grass or revegetated buffers, double silt fencing, diversion ditches with temporary slope drains and application of sod on any slope adjacent to wetlands.

8.10.5 Wetland Buffers Use Limitations

Wetland buffers shall remain in natural undisturbed vegetation, except as provided below.

A. Crossings by streets, driveways, culverts, railroads, recreational features, intakes, docks, utilities, bridges or other facilities shall be allowed. Stormwater control facilities and wetlands constructed for mitigation purposes shall be allowed in wetland buffers.

B. Wetland buffers may ~~can~~ be used for passive recreational activities, such as walking and bicycling trails, provided that service facilities for such activities, including but not limited to parking, picnicking and sanitary facilities, are located outside of the wetland buffer. Water-oriented recreational facilities, such as boat or fishing piers, shall require a ~~approved~~ use permit from the Board of Adjustment pursuant to Sec. 3.8.

C. Land within the wetland buffer shall not ~~can~~ serve to meet minimum lot size requirements except in the Rural Tier and on properties zoned RS-20 where at least 50% of the lot is outside of the wetland buffer or wetland. ~~if there is sufficient buildable area remaining on the lot.~~

D. Any use allowed by this section ~~8.10.5, Wetland Buffer Use Limitations~~ shall be designed and constructed to minimize the amount of intrusion into the wetland buffer and to minimize clearing, grading, erosion and water quality degradation.

Sec. 8.11 Durham Inventory Site Protection Standards

The protection of Durham Inventory of Natural Areas and Rare Species (known as Durham Inventory Sites), whenever possible and appropriate, is accomplished through a series of development standards, including, but not limited to:

- **A.** Site plan review procedure in Sec. Sec. 3.7;
- **B.** Special use permits in Sec. 3.9;
- **C.** Conservation subdivisions in the Rural Tier in Sec. 6.2.4;
- **D.** Open space in Sec. 7.2 ; and
- **E.** Tree protection and tree coverage in Sec. 8.3.

~~Variances in Watershed Districts~~
~~Variances in Conflict with State Watershed Protection Requirements~~
~~A request for a variance from any requirement of this section that violates any provision in 15 NCAC 2B, Sections .0100, .0200 and .0300, as amended, shall be first heard by the Board of Adjustment in accordance with Sec. 3.15, Variances. A recommendation from the Board of Adjustment for a variance shall constitute a request by the local government for a variance from the North Carolina Environmental Management Commission. Such variances shall be considered "significant variances" in accordance with 15A NCAC .0104(r).~~
~~For all variance requests, the local government with jurisdiction shall notify and allow reasonable comment period for all local governments having jurisdiction within the watershed area of the water supply source and the entity using the water supply for consumption.~~
~~The Inspections Director or designee of Services shall keep a record of variances to this Section for their respective jurisdictions. This record shall be submitted to the Supervisor of the Classification and Standards Group, Water Quality Section, Division of Environmental Management, North Carolina Department of Environmental and Natural Resources by January 1st of each year. The record shall provide a description of each project receiving a variance and the reasons for granting a variance.~~
~~County Jurisdiction: Multifamily residential, commercial, office, industrial and research developments in M/LR-A, M/LR-B, F/J-A and E-A districts require site plan approval by the appropriate governing body.~~
~~Prior to granting any site plan or Major Special Use Permit approval, the governing body board shall find that the applicant has demonstrated conclusively that he or she shall comply with all applicable provisions of Nonresidential Performance Standards. 5.5.5.2.~~
~~City Jurisdiction: Multifamily residential, commercial, office, industrial and research developments in M/LR-A, M/LR-B, F/J-A, E-A and E-B districts require site plan approval by the appropriate governing body. Any development utilizing the High Density Option and any cluster development require site plan approval by the appropriate governing body. Site plans for such uses shall conform to the site plan requirements in Section 17 Site Plans. Minor amendments to approved site plans for development in Watershed Districts may be approved by the Development Review Board.~~
~~Any commercial, office, industrial and research development in F/J-A districts requires Major Special Use Permit approval by the governing body. Prior to granting the Major Special Use Permit, the governing board shall find that the applicant has demonstrated conclusively that he or she shall comply with all applicable provisions of Section 5.5.5.2 Nonresidential Performance Standards.~~
~~In M/L-A, E-A and F/J-A districts, bridges and causeways associated with new development that are built over perennial and intermittent streams, ponds or other surface waters shall be~~

~~equipped with spill control and containment features installed in a manner to exclude rainwater and stormwater runoff.~~

~~Failure to properly maintain and operate the physical features required by this Section shall constitute a violation of the zoning ordinance, and shall subject the owner to all civil and criminal penalties provided under the law.~~

~~Solid Waste Disposal Facilities~~

~~Except as allowed in this paragraph, solid waste disposal facilities, including sanitary landfills and nuclear and hazardous waste facilities, shall be prohibited in any Watershed District. However, recycling drop-off sites, solid waste container sites, solid waste transfer stations and rubble landfills shall be permitted in F/J-B and E-B districts. Municipal solid waste landfill facilities which are constructed and operated in accordance with North Carolina Administrative Code Title 15A, Chapter 13B, Section 1600 shall be permitted in the F/J-B district. Recycling drop-off sites and solid waste container sites shall be permitted in M/LR-A and M/LR-B districts.~~

~~To avoid a loss of effectiveness in protecting streams, the stream buffer shall remain in natural undisturbed vegetation, except as provided below. Buildings and other features that require grading and construction shall be set back at least ten feet from the edge of the buffer.~~

~~Crossings by streets, driveways, culverts, railroads, recreational features, intakes, docks, utilities, bridges or other facilities shall be allowed provided that they are designed to minimize the amount of intrusion into the buffer. The buffer can serve to meet minimum lot size requirements if there is sufficient buildable area remaining on the lot. Streets and driveways may run generally within and parallel to the stream buffer only where no other access to the property is feasible and when their design minimizes the amount of intrusion of the stream buffer.~~

~~Stream buffers can be used for passive recreational activities, such as walking and bicycling trails, provided that service facilities for such activities, including but not limited to parking, picnicking and sanitary facilities, are located outside of the buffer. Water oriented recreational facilities, such as boat or fishing piers, shall require an approved use permit from the Board of Adjustment.~~

~~Clearing and revegetating the stream buffer for the purposes of improving its pollutant removal efficiency may be permitted based upon a conclusive finding by the Development Review Board that such efficiency will be improved.~~

~~Stormwater control structures and temporary erosion control structures shall be considered utilities for the purposes of this section and may be allowed in stream buffers, provided that:~~

~~The property owner or applicant demonstrates to the satisfaction of the City Engineer for stormwater control structures or County Environmental Engineer for erosion control structures that such facilities cannot be practicably located outside of the stream buffer, and that any proposed stormwater control structure is sited and designed to minimize disturbance of the stream and stream buffer. Siting stormwater control structures away from the stream channel is preferable to siting such structures in the stream channel.~~

~~Alternate methods of stormwater and erosion control shall be considered prior to approval of such structures in stream buffers;~~

~~A vegetated buffer of a width determined by the City Engineer may be required around the stormwater control structures; and~~

~~Any land disturbed for these structures be revegetated in accordance with Section 5.5.8.2.c, as indicated above~~

~~For development on lots of record created prior to January 1, 1997, septic system drain field repair areas may be allowed in stream buffers, provided that:~~

~~The intrusion into the stream buffer is the minimum necessary;~~

~~The intrusion shall not result in an undisturbed stream buffer less than 50 feet; and~~

~~The property owner or applicant demonstrates to the satisfaction of the Durham County Health Department that the repair area cannot be located outside of the stream buffer.~~
~~Sanitary sewer lines, on an alignment generally parallel to the stream, may be allowed in stream buffers, provided that:~~
~~The property owner or applicant demonstrates to the satisfaction of the City Engineer that the sanitary sewer lines cannot be practicably located outside of the stream buffer;~~
~~Design and construction specifications minimize damage to the stream and the possibility of line leakage;~~
~~The sewer line is generally located at least 15 feet from the top of the stream bank; and~~
~~The stream buffer intrusion and plans for revegetating the stream buffer disturbance be approved by the Development Review Board.~~
~~Inside the UGA in F/J-B and E-B districts, intermittent and perennial streams may be piped, thereby exempting stream buffer requirements, only under the following conditions:~~
~~For intermittent streams, the owner or applicant demonstrates to the satisfaction of the Development Review Board that such piping is necessary to allow reasonable use of the property or for purposes of public safety.~~
~~For perennial streams, the owner or applicant demonstrates to the satisfaction of the Development Review Board that use of the property without such piping poses an exceptional hardship on the property owner. Failure to realize maximum or full development potential from the property shall not be considered to be an exceptional hardship.~~
~~Where stream piping is approved by the Development Review Board, a vegetated buffer area or other device approved by the City Engineer be provided at any intake structure.~~
~~All buffers and physical improvements related to the stream piping are located entirely on the site or on easements adjacent to the site.~~
~~Site Plan approval by the Development Review Board shall be required for any of the stream buffer intrusions described above. When any of the activities described above involves land clearing, the cleared area shall be revegetated in a manner described on the site plan. However, where a site plan is not required by any other provision of the Zoning Ordinance, the City Engineer is authorized to approve plans for stream piping and the County Environmental Engineer is authorized to approve plans for erosion control structures in stream buffers.~~
~~City Jurisdiction: Outside of the UGA, no new public or private sewer lines or outfalls shall be permitted within the Watershed Districts, except that, subject to City Council approval, sewer lines and any necessary force mains and pump stations may be extended to an existing use or structure for which a health hazard has been documented by the Durham County Health Department or the State of North Carolina. In considering such extensions, the City Council shall consider all reasonable alternatives prior to a decision to extend the sewer services. Service connections, installed in accordance with the North Carolina Plumbing Code, shall be permitted only in accordance with Durham City Code, Sections 23-80 through 23-83.~~
~~Cluster Developments~~
~~Residential cluster developments shall be permitted in all Watershed Districts in accordance with the following provisions. Cluster developments shall conform to any applicable provision of the Merged Subdivision Ordinance, July 1, 1992, as amended. Cluster developments that will be served by individual septic systems must be approved by the Durham County Health Department to ensure that the soils are adequate to support the proposed lot sizes.~~
~~The Development Review Board shall not approve plans for a cluster development unless the developer has demonstrated in the plans that the proposed project will not result in pollution from stormwater runoff greater than that which would be expected from a subdivision developed without clustering.~~
~~Overall Density and Lot Size~~
~~The minimum lot size indicated in Section 5.5.5.4 Minimum Lot Size shall not apply to cluster developments. In M/LR-A and M/LR-B districts, the maximum overall density for cluster~~

~~developments shall be one-half (1/2) units per acre and the minimum lot size shall be one (1) acre. The maximum overall density for cluster developments in all other Watershed Districts shall be no greater than that allowed for a non-cluster development on the same site.~~

~~Impervious Surface Limits~~

~~The limit on impervious surfaces for cluster developments shall be those indicated in the table in subsection 5.5.6 Impervious Surface Limits. However, the impervious surface limit may be exceeded on any individual lot in a cluster development, provided that the impervious surface limit for that phase of the entire cluster development is not exceeded. Any preliminary plan and final plat(s) shall show the maximum impervious surface permitted for each lot.~~

~~Open Space Preservation~~

~~Cluster developments shall preserve a portion of the site for open space. Such open space shall not be a portion of any buildable lot in the cluster development.~~

~~To the maximum extent practicable, the open space shall remain in a naturally vegetated state and shall not be cleared or disturbed.~~

~~The area of such open space shall be equal to the total land area of the cluster development less the area in road rights-of-way and lots.~~

~~The open space to be preserved in a cluster development shall be located and configured to provide greater stream buffers; to buffer parking areas; to preserve ponds, wetlands and minor drainage ways; to preserve slopes over fifteen (15) percent, to preserve wildlife habitat and corridors, and to preserve other environmentally sensitive areas.~~

~~Any preliminary plan and final plat for a cluster development shall show the location of any land provided for open space purposes.~~

~~The owner or developer shall provide, through legally enforceable means, for the perpetual preservation of the land as open space and for the continued maintenance of the area. Such mechanism shall be approved by the Development Review Board and may include, but shall not be limited to, the recordation of restrictive covenants or the deeding of land to a property owner's association.~~